EXHIBIT L

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
AT CHARLESTON

IN RE: ETHICON, INC., PELVIC REPAIR SYSTEM PRODUCTS LIABILITY LITIGATION	MASTER FILE NO. 2:12-MD-02327 MDL 2327
THIS DOCUMENT RELATES TO CASE CONSOLIDATION:	JOSEPH R. GOODWIN U.S. DISTRICT JUDGE
TERRESKI MULLINS, et al., Plaintiffs, vs.	CASE NO. 2:12-CV-02952
ETHICON, INC., et al., Defendants.	

DEPOSITION OF

SCOTT A. GUELCHER, Ph.D.

Taken on Behalf of the Defendants

September 15, 2015

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I N D E X

WITNESS: SCOTT A. GUELCHER, PH.D.

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*** Exhibit 8 was retained ***

The deposition of SCOTT A. GUELCHER, Ph.D., taken on behalf of the Defendants, on September 15, 2015, at 9:07 A.M., in the offices of Butler Snow, 150 Third Avenue South, Suite 1600, Nashville, Tennessee, for all purposes under the Rules of Civil Procedure.

The formalities as to notice, caption, certificate, et cetera, are waived. All objections, except as to the form of the questions, are reserved to the hearing.

It is agreed that Gary Schneider, being a Notary Public and Court Reporter for the State of Tennessee, may swear the witness, and that the reading and signing of the completed deposition by the witness are reserved.

* * *

SCOTT A. GUELCHER, Ph.D.,
was called as a witness and, after having been first duly sworn, testified as follows:

E X A M I N A T I O N

BY MR. THOMAS:

Q. Good morning, Dr. Guelcher.
A. Good morning.
Q. We're here today in the deposition -- for your deposition in the Mullins versus Ethicon case, correct?
A. Yes.
Q. Let me hand you what I'm going to mark as Deposition Exhibit No. 1.

(Marked Exhibit 1.)

BY MR. THOMAS:

Q. And ask you if that's your expert report in this case?
A. Yes.
Q. And does Deposition Exhibit No. 1 contain the complete set of your opinions that you're prepared to offer in this case that you have at this time?
A. Yes.

(Marked Exhibit 2.)

BY MR. THOMAS:

Q. Let me show you Deposition Exhibit No. 2. Deposition Exhibit No. 2 is your Notice of Deposition in this case. Have you seen that before today?
A. Yes.
Q. And in response to Deposition Exhibit No. 2, did you seek to collect documents that are responsive to the document requests that are attached to that notice?
A. Yes.
Q. And what did you bring to me today?
A. The notebook is the report with the reliance documents. So the -- I have an updated CV. There's a few papers that have been updated.
Q. Okay.
A. That's an updated CV.
Q. I'm going to mark your updated CV as Deposition Exhibit No. 3.

(Marked Exhibit 3.)

THE WITNESS: I brought the fee sheet. It's the same as the one in the report. No change there.

MR. THOMAS: Okay. I will mark your fee sheet as Deposition Exhibit No. 4.

(Marked Exhibit 4.)

BY MR. THOMAS:

Q. Do you have an hourly rate?
A. No.
Q. Okay. And how many hours is a half a day?
A. I don't know. It's half a day. We decide at the time that the activity was performed.
Q. Last time I saw your fees, I think, were in the Perry case. You were charging $475 an hour; is that right?
A. I don't remember. That's in the range.
Q. Okay. So Deposition Exhibit No. 4 represents your current fees, correct?
A. Yes.
Q. What happens if you only work for an hour?
A. What do you mean only work for an hour?
Q. Well, you --
A. With respect to what --
Q. Well --
A. -- activity?
Q. -- any -- for labor you charge $1,250 for a half a day.
What happens if you only work for an hour?
A. Let me look at the fee sheet again.
Q. You have it right there.

A. So you're looking at -- you're looking at the -- I'm not sure where you're looking, actually. Was it research and analysis?
Q. Under labor --
A. Yeah.
Q. -- research and analysis, you show half day, full day, $1,250 for a half a day. Are there --
A. Right.
Q. -- days when you only work an hour?
A. I don't typically -- so the way I -- I do the billing is I -- I charge a flat rate for a report. And I charge the half day or the full day for travel and testimony. That's the way the billing is done.
Q. Okay. So are you doing research and analysis for which you bill your time?
A. I don't remember billing time for research and analysis. It's all been -- that I can remember, it's -- I bill for a report or I bill for the testimony or the travel. That's how my billing has been done.
Q. Okay.
A. It's on the fee sheet, but I don't think I've been using that. I've been billing by

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reports.
Q. Okay. And the last entry shows deposition, trial preparation. Is that a flat rate that you charge to get ready for trial?
A. That's correct.
Q. And then if you're testifying at trial, I see you have an entry here for $2,000 for a half a day and $4,000 for a full day; is that correct?
A. That's correct.
Q. Okay. What else did you bring?
A. I brought an updated list of previous testimony.
(Marked Exhibit 5.)
BY MR. THOMAS:
Q. I've marked your updated list of previous testimony as Deposition Exhibit No. 5.
Do you have any depositions currently scheduled now -- between now and December?
A. Not that I'm aware. I don't think so.
Q. Do you have any trials at which you're supposed to appear between now and December?
A. Possibly a Boston Scientific trial in October in North Carolina.
Q. Okay. Do you know the name of that case?
A. I can't remember. It's a Boston

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Scientific. It was part of the wave. So it was -- it was -- I believe it was part of the Barba wave.
Q. Are you --
A. But I don't remember the case.
Q. Are you planning to attend that trial as you sit here today?
A. That's my intent.
Q. Okay.
A. I think it's the week of the 5th.
Q. Okay. What else do you have with you today?
A. I have the invoice for the report that I prepared for this case.
(Marked Exhibit 6.)
BY MR. THOMAS:
Q. I'll mark the invoice for the report that you prepared in this case as Exhibit No. 6.
Is that the total amount of time that you've billed plaintiff's counsel for this matter to date?
A. For this -- for this matter, this is what I've billed plaintiff's counsel.
Q. Okay. What else did you bring with you today?

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A. That's it. Well, other than this notebook, which is the report with many of the footnotes.
Q. Okay.
A. Do you want to enter that in?
Q. I always do. You know that. I'm going to mark your notebook.
A. I just would like to have it back so I can use it.
Q. Absolutely will. I'm going to mark your notebook as Deposition Exhibit No. 7.
(Marked Exhibit 7.)
BY MR. THOMAS:
Q. And is it fair to describe this as your report with all the references that you cite that you need -- want to have to talk about?
A. Not all of the references, but most of the references are there.
Q. Okay.
MR. THOMAS: And, Counsel, I believe you told me before that you have something you need to give me?
MR. BOWMAN: Yes, sir. It's a thumb drive.
MR. THOMAS: Can you tell me what's

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on the thumb drive?
MR. BOWMAN: Yes. That is literature and documents that are on his reliance list that was already turned over with his report. I also have a separate file for testing that was requested in the Notice of Deposition. It's actually very huge, so I'm going to have to send it to you as a link if that's all right.
MR. THOMAS: So there's additional information; is that right?
MR. BOWMAN: That's right.
MR. THOMAS: Is that the testing that he did on the -- intentionally oxidizing polypropylene?
MR. BOWMAN: So I'm going to let him talk about that, but it's in response to the deposition request 15.
MR. THOMAS: Okay. I'm going to mark the thumb drive as Exhibit No. 8.
(Marked Exhibit 8.)
MR. BOWMAN: For clarity's sake, the thumb drive does not contain the testing. The testing will be on the link that I send. Is that all right?
MR. THOMAS: That's fine. Is there

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anything else that you can tell me that is not on the thumb drive, other than the testing that was the subject of the request?

MR. BOWMAN: I can. There were objections made to producing all of his testimony and reports from all pelvic mesh litigations. And there was -- there were objections made to producing all of his time as was reported in other pelvic mesh litigations. I believe there were also objections to things beyond the scope of the litigation and as being not responsive per Federal Rule 26.

MR. THOMAS: Okay.

MR. BOWMAN: And we can get into those if you want. But as far as I know, everything else is being produced.

MR. THOMAS: Well, as we discussed, I believe you said the objections were filed last night. I don't have -- we don't have here today, and I don't want to spend time fussing about that because we've -- I'd like to get out of here early, and I'm sure you would too.

MR. BOWMAN: Frankly, I couldn't argue with you if I wanted to, so...

MR. THOMAS: Well, there we have it.

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MR. BOWMAN: Yes. All right.

BY MR. THOMAS:

Q. Doctor, you heard counsel's explanation of the information that's contained on the thumb drive. Did you prepare the thumb drive?

A. I did not.

Q. Okay. You heard him describe some testing that's not on the thumb drive that's going to be supplied to us by a link. What is that?

A. That was the testing that Dr. Dunn did on several meshes. And it was produced at Perry deposition.

Q. Is there anything new and different produced in that testing that I'm going to get by link today that hasn't been produced in the Perry case?

A. Not to my knowledge. I don't -- I believe it's the same information.

Q. Did you review that information before it had been supplied to counsel to give to me?

A. I did not. I -- it came directly from Dr. Dunn.

Q. Okay. Dr. Guelcher, you know I've had the opportunity to take your deposition on a couple of times, and I believe Burt Snell took your

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deposition in the Perry case.

A. Yes.

Q. Have you reviewed your testimony in the Huskey case and the Perry case in preparation for this deposition?

A. Yes, I've reviewed some of that testimony.

Q. Is there anything about your answers in either the Huskey case or the Perry case that you believe are -- to be incomplete or inaccurate?

A. No. I believe my opinions have largely stayed the same, and there's new information that further supports the opinions, but they haven't changed in the basic essence.

Q. And the reason why I asked the question, just to be fair and clear, is that you've already been deposed at length on some very --

A. I understand.

Q. -- basic stuff in your reports, and I just don't want to go over it again.

A. I understand.

Q. Is there any reason for me to ask you about your prior testimony, either the Huskey case or the Perry case, for you -- to give you a chance to further explain your opinions?

A. I don't believe so.

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Q. Okay. Since your deposition in the Huskey case, have you had any further training in polymer science?

A. What do you mean by training?

Q. Anything that adds to your skill set to you to evaluate these meshes.

MR. BOWMAN: Object.

THE WITNESS: It's been a year. I have -- I've published several new papers. Do you want me to -- I'm not sure what you're asking me.

BY MR. THOMAS:

Q. Well --

A. Do you want me to go through new papers, new presentations? I'm not...

Q. Papers and presentations, I don't need to you go through them in detail, but is that what you're referring to as being the additional work that you've done since we were last together?

A. Well, I'm hung up on the word "training." Training to me means taking a class. I have additional experience.

Q. Okay. Have you had any additional classes?

A. Classes on?

Q. Polymer science.

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A. I mean, I teach classes. I don't generally take them, so...
Q. I understand. But the answer to the question is no, correct?
A. No.
Q. Okay. But you have done additional research?
A. Yes.
Q. And you have presented papers?
A. Yes.
Q. Is that the extent of the additional work that you've done since we were together last in Huskey?
A. It's all research related.
Q. Okay. And research related to this litigation?
A. How does research relate to the litigation? You mean -- I'm not sure what you mean.
Q. Well, what I'm trying to understand is the additional work or knowledge that you've gained --
A. Right.
Q. -- since the Huskey deposition, is that information and knowledge that you've gained through your research in this litigation?

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A. Well, it's -- it's in my updated CV. My report has some discussion of new references. So I would say that there's new papers and new presentations that are either on the CV or discussed in the report that reflect my updated knowledge and understanding of pelvic mesh over the past year.
Q. And the updated knowledge and understanding that you have about pelvic mesh over the last year has been gained through your work in this litigation, fair?
A. Not exclusively. Not -- not the litigation. When I think in terms of litigation, I'm thinking in terms of what's been billed to the litigation. And what's been billed to the litigation is reports, depositions, trial testimony. That's what's been billed to litigation. The other work is through my professional appointment at Vanderbilt where I do research. So -- so that's all Vanderbilt research.
Q. What Vanderbilt research have you done since we were together last on the -- on pelvic mesh issues?
A. Well, I co-authored a paper with

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Dr. Iakovlev. I'm sorry. Could you repeat the -- you're -- you're referring back to Huskey trial?
Q. The Huskey deposition.
A. Huskey deposition.
Q. That's right.
A. Okay. So the new work that's been done is the study with Dr. Dunn that was funded by his company. Mr. Snell deposed me on this in the Perry case. It was produced in Perry by Jeff Kuntz. So Mr. Snell deposed me on it. But it was part of research at Vanderbilt, paid for by Dr. Dunn's company. Then there's the paper with Dr. Iakovlev, and then there's the IUGA meeting that I went to in June.
Q. And where was the IUGA meeting?
A. It was in France.
Q. And who paid for you to attend the IUGA meeting in France?
A. I paid. It was not part of the litigation.
Q. Did you attend -- did any plaintiff's counsel attend that meeting?
A. For any mesh litigation?
Q. Yes.
A. Okay. There either were two attorneys...

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Q. And who attended that meeting that you knew --
A. Margaret Thompson and Bri Olson (phonetic) from Motley Rice.
Q. And did you work with Ms. Thompson or Ms. Olson while you were in France on the issues presented by this litigation?
A. So Ms. Thompson requested a workshop, a mock trial workshop at the IUGA meeting. And I participated in that mock trial workshop.
Q. And what did you do at the mock trial workshop at the IUGA meeting?
A. I was an expert witness.
Q. Were you compensated for your time?
A. No.
Q. Who else participated in the mock trial workshop?
A. Dr. Iakovlev, Dr. Carey, Dr. Ostergard. That's all I remember.
Q. And was this mock trial workshop put together by Dr. Thompson?
A. It was.
Q. And what did you do to prepare for that mock trial workshop?
A. Well, Ms. Thompson prepared slides for my

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direct exam. And she prepared handouts for the attendees who -- the people who attended the workshop were divided into two juries, and Ms. Thompson gave them several documents.
Q. And who conducted your direct examination?
A. Ms. Thompson.
Q. Were there any other lawyers other than Margaret Thompson and Bri Olson who were present at the IUGA meeting that you met with?
A. I don't know everyone who was in the audience. I don't know.
Q. And the people who attended the workshop were doctors?
A. There was a mix. They were doctors, Ph.D.s, maybe some trainees. There was a mix of people. I didn't meet all of them.
Q. Do you have a list of attendees?
A. I don't. The IUGA would have that, the people who registered for the workshop. Margaret Thompson may have that. I don't have it that I know. I don't believe I have that.
Q. Do you still have a set of the slides that you used at the mock trial?
A. I was told by plaintiff's counsel that there are objections pending on that.

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Q. Okay. But do you still have a set of those slides?
A. I believe so. But I haven't looked at -- I'm not really sure.
Q. Okay. And have you -- those are slides that you did not produce to me today?
A. I did not produce them at all. They're someone else's property. I mean, Ms. Thompson prepared the slides for me.
Q. Okay. Have you seen the other slides produced by the other witnesses, Dr. Iakovlev, Dr. Carey, and Dr. Ostergard?
A. I don't believe so.
Q. Okay.
A. I don't think I saw that. I saw them present their slides, but I don't have their slides. I have my slides.
Q. Did you take any notes?
A. No.
Q. Did anyone subsidize your expenses for your trip to France for the IUGA meeting?
A. So what do you mean by subsidize my expenses?
Q. Did anybody help you pay for it?
A. Reimburse?

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Q. That's right.
A. So I -- I paid for it out of my faculty development fund at Vanderbilt as a discretionary expense.
Q. Did you receive any compensation from plaintiff's counsel for your participation in the workshop?
A. No.
Q. You know that all the people you've identified have testified as witnesses for the plaintiffs in the mesh litigation?
A. I do.
Q. Do you know whether there was any effort to present expert witnesses from the defense litigation?
A. Ms. Thompson could speak to that. I can say that there were no defense witnesses. I -- I don't know if there was an attempt or not. She would know. But there was a cross-exam, but there were no defense witnesses, and I don't know why.
Q. Did -- who conducted the cross-exam?
A. Ms. Olson.
Q. Was the presentation videotaped?
A. I don't know.
Q. Do you know whether the presentation was

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recorded by stenography?
A. I don't know that either.
Q. Is this IUGA meeting the same place where you made a presentation to the group on --
A. Are you referring to the PP29, the in vitro oxidation study? Yes.
Q. That's right.
A. It was that -- the workshop was on Wednesday, and I think the talk was later. I'm not -- I don't remember the date. It was after.
Q. How long was the meeting?
A. Four days. I don't know.
Q. How long were you in France?
A. Ten or eleven days.
Q. And other than -- did you attend the meeting all four days?
A. Not all day, but I went to the meeting several days. I don't remember exactly which days.
Q. What else did you do during your time in France?
A. So my wife came with me. I paid for her to come, and she came with me.
Q. Good.
Other than your work with Margaret

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Thompson and Bri Olson and the workshop, did you have any other work on the pelvic mesh litigation while you were on your trip?
A. What do you mean work? On the litigation or on --
Q. Correct. On the pelvic mesh. Anything -- anything -- I'm sorry.
A. I'm sorry. Go ahead, yeah. I --
Q. I just want to --
A. Yeah.
Q. -- define my question.
A. Yeah, that's what...
Q. You obviously spent almost a week more --
A. Mm-hmm.
Q. -- in France while you were there.
A. Mm-hmm.
Q. And you either spent it vacationing with your wife, which I hope you did, or you spent at least part of it doing some other work with plaintiff's counsel or meeting with other --
A. I understand.
Q. -- people over there to talk about the issues about which you're testifying today.
A. Okay. Now I understand. So I'll try to be a little more specific. We were there two

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weekends, so on the weekends we were doing other things. During the meeting, we -- we met for the workshop, and then everybody went their separate ways. So there was -- I think I had some conversations with Dr. Iakovlev about our manuscript that was being reviewed. I talked with Dr. Carey about writing a research grant to the NIH on mesh. I -- there wasn't -- I don't remember any discussion of the litigation. It was -- it was research. What I would call research, which I would call within the context of my position at Vanderbilt, which is writing research proposals, writing papers, and mentoring students.
Q. What's the topic of the research grant to NIH that you discussed with Dr. Carey?
A. Well, I haven't submitted it yet, so it's all, you know, confidential, new ideas. I don't have any -- I haven't written anything yet.
Q. Do you -- are you -- not that I'm going to argue about it.
A. Yeah.
Q. Are you refusing to share your ideas with me?
A. I don't want to. It's -- it's still

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confidential. I mean, I haven't -- these grants are all confidential when they're submitted, so I don't think it's appropriate to -- to discuss my ideas. It's not part of my testimony. It's not in my report. It's not -- I'm not talking about my externally funded research in this report. I'm talking about, you know, the opinions that are in here. So that's not part of my report.
Q. Do the -- strike that.
Are the ideas that you discussed with Dr. Carey designed to answer questions that are posed in this litigation?
MR. BOWMAN: Object to form.
THE WITNESS: That's very -- what do you mean questions posed by this litigation? Could you be more -- I'm not -- I'm not sure what you're asking me.
BY MR. THOMAS:
Q. I'm just trying -- there are various medical and scientific issues that are debated by Ethicon and the plaintiffs in this litigation, and you're involved in some of those issues.
My question is whether the research that you discussed with Dr. Carey is designed to further your knowledge and understanding about the

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issues about which you're testifying today.
A. I would say it's more forward looking. It's about finding new solutions, not so much about -- it's separate from this.
Q. Does it concern an alternative to mesh?
A. It could.
Q. You're not -- you're not going to tell me?
A. No.
Q. Okay.
A. I don't --
Q. I'm not going to argue with you anymore.
A. I mean, this is research that's protected.
Q. Protected by what?
A. By confidentiality. When I submit a grant to the NIH, the reviewers who review those documents all have to keep it confidential. And it hasn't even been submitted yet. So it needs to be confidential.
Q. Okay.
(Marked Exhibit 9.)
BY MR. THOMAS:
Q. You mentioned a minute ago PP29. Let me hand you what I've marked as Deposition Exhibit No. 9 and ask you if that's the reference that you just discussed.

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A. It is.
Q. Tell me what Exhibit No. 9 is.
A. So this is an abstract that was submitted to the IUGA meeting. It was accepted for an oral presentation, and it was published in the supplement in the International Urogynecology Journal this year.
Q. And did you write Exhibit No. 9?
A. I co-authored it with Dr. Dunn.
Q. Who was the primary author?
A. Well, I was.
Q. All right. And what contribution did Dr. Dunn make to the writing of Exhibit No. 9?
A. I don't remember.
Q. Okay.
A. I don't remember.
Q. And Exhibit No. 9 is a discussion of the research that you and Dr. Dunn conducted that was produced and discussed in the Perry litigation, fair?
A. Yeah, it was produced and it was discussed. But Dr. Dunn was not deposed on it. It wasn't -- it was withdrawn from the Perry litigation.
Q. Okay. And I believe you said that you

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presented this information orally at the meeting?
A. That's right.
Q. And you presented it to doctors and Ph.D.s?
A. I presume that's who was in the audience. I don't know who was in the audience.
Q. How long was your presentation?
A. Oh, I don't know. Something around ten minutes. I'm not sure.
Q. Did you have a PowerPoint presentation with your presentation?
A. I did. And those have been produced. I gave them to plaintiff's counsel. It's on the drive, I believe.
Q. Okay. Is that on the thumb drive that we have today?
A. I believe so.
Q. Thank you.
Okay. Was Dr. Dunn present for the presentation?
A. No.
Q. And what was the message you were trying to convey to your audience when you made the presentation of the information in Exhibit No. 9?
MR. BOWMAN: Object to form.

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THE WITNESS: The message? You mean the conclusions?
BY MR. THOMAS:
Q. Right. What were you trying to convey to your audience?
A. That oxidative -- it's stated in the conclusions. Oxidative degradation of polypropylene pelvic mesh was evidenced by chemical and physical changes under simulated in vivo conditions. That was the conclusion from the study.
Q. Okay. And did you discuss the actual experiment that you and Dr. Dunn conducted with the group?
A. I did. It's in the slides.
Q. All right.
A. I had a slide showing the methods.
Q. What's your -- strike that.
Tell me what expertise you have in FTIR.
A. In FTIR?
Q. Yes.
A. Well, I've published a number of papers with FTIR data. We -- we use it quite a bit for characterizing the composition of polyurethanes.
Q. Mm-hmm.

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A. I've also published using FTIR to measure the reaction rate of the injectable polypropylene grafts that we make. So we follow the isocyanate peak over time, fit it to a kinetic model. There's a paper I published in 2012 or '13, a few years ago, where we used ATR-FTIR to monitor the reaction rate.
Q. Are you trained to perform FTIR analysis of fibers, mesh fibers?
MR. BOWMAN: Object to form.
BY MR. THOMAS:
Q. Could you do it?
A. I didn't actually do it myself. Dr. Dunn did it.
Q. Are you trained, though, in the use of FTIR equipment to conduct analyses of mesh fibers?
A. I've done it before, not in the last year, but as a postdoc I did it.
Q. Tell me about your experience as a postdoc in FTIR analysis.
A. Well, it was very similar. I mean, when I was a postdoc, I did the analysis of -- to polyurethanes using FTIR. Now I'm a professor, so I have trainees that work for me that do those measurements, but I direct them.

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Q. Okay. But do you consider yourself qualified to take a piece of polypropylene mesh and conduct an FTIR analysis of it?
A. Yes. I've done things like that before.
Q. What kind of FTIR machine was used to analyze the mesh in Exhibit No. 9?
A. I'm not sure. Dr. Dunn has that instrument in his lab, and I don't know what -- we have a Bruker at Vanderbilt. We've got -- I'm not sure what's in his lab. The one that I use in the Nanoscience Institute I believe was a Bruker.
Q. Okay. But you don't know what machine Dr. Dunn used to analyze --
A. I don't know.
Q. -- this mesh?
A. No.
Q. What experience do you have in conducting XPS analysis?
A. I've never done XPS analysis. I -- my students have done it under my direction, and I've -- I believe I have some papers with XPS. I'd have to look at my CV.
Q. Is it fair to understand that you rely on data generated by XPS as opposed to conducting that kind of testing yourself?

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A. I've done both. I don't do it, but they're my trainees. They're people that I train, that I pay.
Q. I understand. But I'm trying to find out what experience you have, Doctor.
A. I mean, I have experience interpreting and working with XPS data. I don't actually do the measurements.
Q. Okay. That's fine.
A. Okay. Go ahead. Sorry.
Q. You have something else you want to say?
A. No. I'm -- I'm done.
Q. Okay. Do you have continuing experiments with Dr. Dunn?
A. Not right -- no, not now.
Q. Do you have plans for additional work with Dr. Dunn?
A. I don't know. I'm not sure yet.
Q. Okay. Since you spoke at the IUGA meeting and this Exhibit 9 was published, have you discussed with Dr. Dunn the contents of the test?
A. Since the IUGA meeting?
Q. Yes.
A. I believe we talked about it some. I can't remember the details. We probably have

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talked about it. I just -- I don't know.
Q. Do you still have the mesh that you tested as a part of the experimental work in Exhibit No. 9?
A. Dr. Dunn, I believe, has that material.
Q. Okay.
A. It was done through -- he paid for it, so he has the material.
Q. Did you talk with Dr. Iakovlev about the results of the testing that you conducted in Exhibit 9?
A. I believe we discussed it at the meeting, but I can't remember anything definitive. We talked about, you know -- I don't -- I don't remember.
Q. You mentioned before that you published a paper with Dr. Iakovlev?
A. That's correct.
Q. And Dr. Iakovlev looks at a different methodology for analyzing the extent to which he suggests polypropylene has degraded, correct?
A. Dr. Iakovlev uses microscopy.
(Marked Exhibit 10.)
BY MR. THOMAS:
Q. And staining?

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A. I would -- I would -- yes.
Q. Let me show you what's been marked as Deposition Exhibit No. 10 and ask you if Deposition Exhibit No. 10 is the study to which you just referred that you co-authored with Dr. Iakovlev.
A. It is. This is the version that's published online on their website.
Q. Contents of the article true and accurate to the best of your judgment?
A. Yes.
Q. And you know that Dr. Iakovlev uses his histological stains in an effort to understand the extent to which polypropylene may have degraded?
A. Yes.
Q. Do you understand the chemistry by which tissue is stained?
MR. BOWMAN: Object to form.
THE WITNESS: There's lots of different stains. I mean, is there -- is there something more specific? That's just a really broad question. There's lots of different stains. Are you talking about fixation or staining or what are you -- what are you talking about?

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BY MR. THOMAS:
Q. I'm talking about how various stains stain tissue. Do you know how that works chemically?
A. Some of them, the ones that I've worked with.
Q. Have you worked with H&E stain before? Hematoxylin and eosin?
A. Mm-hmm, yeah.
Q. How does hematoxylin and eosin stain tissue?
A. I need to think for a minute.
MR. BOWMAN: I'm going to object to form.
BY MR. THOMAS:
Q. Just for the record, you're reading through --
A. I'm looking at the paper.
Q. -- Exhibit No. 10?
A. Yeah, I'm looking at the paper.
Q. I don't want to interrupt you --
A. Yeah.
Q. -- but may I ask you a question?
A. Sure.
Q. Are you able to tell me, without review of Deposition Exhibit No. 10, how hematoxylin and

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eosin stain tissues chemically?
A. I don't remember the details of it right now.
Q. Do you remember generally how it happens, just a general concept? Why hematoxylin stains blue and eosin stains pink or red?
A. I don't remember the reasons for the different stains. I know that the nuclei are staining blue and the cytoplasm is staining pink --
Q. Is that the --
A. -- or red.
Q. Is that the result of a chemical reaction?
A. I mean, I believe so. It's -- I just don't remember the details of that chemical reaction.
Q. Okay. Do you understand that a chemical reaction is required in order for a stain to be left in tissue?
A. That's my understanding.
Q. Okay. Do you know whether polypropylene stains?
A. I wouldn't expect polypropylene to stain.
Q. Why is that?
A. Well, it's a synthetic polymer, so it

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doesn't have the proteins and the...
Q. Would you expect oxidized polypropylene to stain?
A. No, oxidized polypropylene I would not expect to stain.
Q. Okay. Doctor, let's go back to Exhibit No. 9, please.
A. Okay.
Unless -- let me go back to my answer. It wouldn't -- I need to clarify a point. It wouldn't necessarily stain, but the dye could get trapped in the pores of a porous material. That's -- I need to add that just to be specific.
Q. And when you say "the dye could get trapped in the pores," what do you mean by that? You're back referring to the paper again?
A. Yeah. I need to look at this again. And I should state for the record, my main contribution to this paper was a myeloperoxidase staining.
So the degraded oxidized polypropylene layer is -- it's oxidized. It's a -- it's a porous material, and the -- and the dye can get trapped in those pores, is the way I understand it.

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Q. Is that based upon your review of Dr. Iakovlev's work?
A. Yes.
Q. Do you have any other basis for reaching that conclusion, other than your review of Dr. Iakovlev's work?
A. That conclusion is based on my work with -- yeah, with Dr. Iakovlev's staining that he did in this paper.
Q. Okay. Now, when you and Dr. Dunn performed your study where you intentionally oxidized the TVT mesh --
A. Yes.
Q. -- did you ever attempt to see if those samples would stain?
A. No.
Q. Why not?
A. Because that wasn't the question we were trying to answer. We were -- we were answering the question can the polypropylene in the mesh oxidize, can it degrade. And we assessed oxidation by XPS and FTIR. We assessed degradation by SEM.
Q. Did you ever have any conversations with Dr. Iakovlev about testing, whether intentionally

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oxidized polypropylene would hold stain?
A. I believe we may have discussed this at one point for the paper. I can't remember the details, though.
Q. Did you ever have a discussion about using your samples from your test that are contained in Exhibit No. 9 to determine whether intentionally oxidized polypropylene holds stain?
A. I don't remember it specifically that way. He was -- I believe he was -- I can't remember the details, but I believe he was doing his own oxidation experiment. And I don't think we were going to give him samples. I can't remember, though.
Q. What did -- what do you remember about Dr. Iakovlev's own experiment on oxidizing polypropylene?
A. All I remember is that he had some samples, and I don't -- I don't -- to my -- I don't know that he's tested them. I know that he had samples, but I don't know that he ever tested them.
Q. Did you have discussions with Dr. Iakovlev about the methodology that you used to conduct the test that you and Dr. Dunn conducted there in

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Exhibit No. 9?
A. I believe we -- we talked with him about that. He was aware of the work. He was aware of it, of the -- of the -- you're talking about the abstract, right?
Q. That's correct.
A. He was aware of that work, yeah.
Q. Did -- who started their experiments first, do you know?
A. Probably Dr. Iakovlev. He's been working on this for some time.
Q. I'm talking about the intentionally oxidized polypropylene experiments now. Do you know who did that first?
A. I don't know. I --
Q. Before you started your project --
A. Yeah.
Q. -- did you start -- did you talk with Dr. Iakovlev about it?
A. I don't -- I don't remember.
Q. You've been working with Dr. Iakovlev in different contexts for a couple years now, correct?
A. Yeah. But I got the idea to do the oxidative degradation experiment from my work with

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the lysine-based polyurethane. So I published a couple papers on that. That's where I -- that's where I got the idea. Now, he may have gotten it independently and started before me. I -- I don't know that. I don't know when he started it. But Dr. Dunn and I did this together independently. And I have discussed aspects of it with Dr. Iakovlev, but I don't -- I don't remember when or what exactly.
Q. Okay.
A. Other than what I've told you.
Q. Do you know why Dr. Iakovlev has not yet tested the samples that he is testing now?
MR. BOWMAN: Object to form.
THE WITNESS: I don't know. I don't -- I don't know what -- he may have tested them. I just don't know the status of it.
(Marked Exhibit 11.)
BY MR. THOMAS:
Q. Let me show you what's been marked as Deposition Exhibit No. 11. Is Deposition Exhibit No. 11 the source document that you used in order to determine the methodology for the tests that are in Exhibit 9?
A. It's -- it's a source. There are other --

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like I said, I've published two papers on this, which, I mean, I used similar methodology. I'll have to look at the details of the medium. I can't remember the...
Q. Well, if you go to page --
A. So where?
Q. -- 520 of --
A. Yeah.
Q. -- Deposition Exhibit No. 11 --
A. Okay.
Q. -- it talks about the in vitro treatments with 20 percent hydrogen peroxide solution, .1 cobalt chloride. Do you see that?
A. Yes.
Q. Is that the same methodology you used in your --
A. I'm sorry. Where did you read again? I'm...
In vitro treatments, 20 percent peroxide with -- I believe it was the same. Let me check this abstract. It looks to be the same.
Q. Okay.
A. Yeah.
Q. That's one of the references you cite in your abstract?

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A. It is, yeah.
Q. Okay. That's where I concluded that that was a source document that you used for your methodology; is that fair?
A. It's a source document. We're pretty limited on how many references you can show in an abstract. I -- I probably showed this because it was the first time this specific medium composition was published. That's probably -- but I don't remember exactly. But this paper was before mine, so that's probably why I cited it in the abstract because it was published -- I got the idea for my paper from this paper.
Q. And, Doctor, are you aware of any paper that analyzes the extent to which oxidized polypropylene will absorb stain?
A. I don't -- I don't think we're saying that oxidized polypropylene absorbs stain. I think it -- it gets trapped in the pores. I'm not necessarily --
Q. Okay. Let me ask you that question.
A. -- saying it absorbs it.
Q. Let me ask the question that way then.
A. Okay.
Q. Well, first of all, is there -- are you

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aware of any paper that discusses the absorption of stain in oxidized polypropylene?
A. You say "absorption." You mean like the way it would typically work biologically, right?
Q. Correct.
A. No, I'm not aware of that.
Q. Are you aware of any papers which discuss the extent to which oxidized polypropylene traps stain such that it retains the same and shows color?
A. Well, no, I believe that was the point of this study, is to -- I don't believe that's been published. I think that was a new finding in this study.
Q. That's Dr. Iakovlev's study?
A. I'm sorry. Yeah, Dr. Iakovlev's --
Q. Now, those are --
A. -- study.
Q. -- all -- those are all meshes that have been explanted from people, correct?
A. This Dr. Iakovlev study, yes, it's a hundred and some patients, yeah.
Q. And my question is -- I'm referring to pristine mesh intentionally oxidized, whether -- question whether that intentionally oxidized

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pristine mesh will trap stains in the pores such that it shows color?
A. I don't know if that's been done.
Q. Okay. And it's fair to understand that appropriate scientific method would require a study intentionally oxidizing polypropylene, exposing it to stain, to determine whether it does, in fact, get trapped in any cracks, pores, or crevasses in order to show color, correct?
A. I don't know that I would say that. I mean, it's -- I don't know how easy it is to do. You know, in these previous studies, they -- they oxidize -- they oxidize -- okay. I'll be more specific.
In the -- in Exhibit 11 -- and there's an earlier -- maybe it wasn't this one. There was an earlier paper in '93 where they strained the samples and they -- they looked for transverse cracks and degradation by SEM, but no one's ever -- it might be difficult to do. I wouldn't say that it's not scientifically valid because it wasn't done. That would give further confirmation. But this is a long paper. You just don't -- can't -- you know, this was peer reviewed and it was published, so I wouldn't say that it's

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not scientifically valid because it wasn't done in vitro.
Q. Okay. Until you test it, do you have any scientific basis to conclude that intentionally oxidized polypropylene would, in fact, hold stain such that it shows color?
MR. BOWMAN: Object to form.
THE WITNESS: If it's -- if it's a nanoporous structure, it has porosity, the stain could defuse into those pores. And it's not necessarily absorbing -- absorbing or reacting like it would with tissue, but it -- it would get trapped within those pores. But that was just one outcome measure. There were others as well. And, you know, typically with paper, you try to show it multiple -- show the same idea multiple ways, and we just didn't do that in vitro experiment in this paper.
BY MR. THOMAS:
Q. I understand.
Doctor, are you familiar with the process whereby tissue is prepared into histological slides?
A. So, yes. So all the -- the bone work that I do, I have a woman that does my histology in my

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lab. She's my lab manager. And we -- we just have some bones that came in just this week. So we do micro CT. We keep them in formalin for two weeks to fix the tissue, then we have to dehydrate it through a series of alcohols. We embed it in a polymethyl methacrylate resin, then we grind it down to -- cut it, grind it down to 80 microns, do different types of stains, do histomorphometry to measure the amount of bone graft that's left over. So we do this pretty routinely.
Q. Do you manually prepare your slides or do you use a machine?
A. What do you mean manually prepare them? Machine? I'm sorry.
Q. I'm sorry too. My fault.
In the preparation of histology slides, the way I understand it, it's a very complex series of -- of cleanings, washings with xylene, alcohol, and water?
A. It depends on what you're doing, right? So for the -- I mean, most of the bone work that I do is what we call plastic embedding, hard sections. So we don't cut those on a microtome like what Dr. Iakovlev did. We have a -- we cut them on a band saw, and then we're -- and we glue

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them to a surface and we grind them. We grind them to 80 microns and we -- and then we stain.
Q. Are you familiar with the slide preparation process used by Dr. Iakovlev in the preparation of his slides used in his report, Exhibit 10?
A. I don't know the exact details of how he did it, but typically with soft tissue, you can do the paraffin embedding, which is using different solvents like you described, where you -- you still have to dehydrate the tissue. And you -- but you put it in a softer plastic like paraffin so you can cut a thin section on a microtome and see different levels of cellular detail.
Q. And part of that slide preparation process involves the washing away of excess stain, doesn't it?
A. I believe so. There's a protocol.
Q. Do you know how that washing away of excess stain would impact the ability of any oxidized polypropylene to hold stain, as you've postulated?
MR. BOWMAN: Object to form.
THE WITNESS: I don't know. Again, this is Dr. Iakovlev's work, so he would be the

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one that could speak to those details of the protocol. I didn't -- I don't have his protocol, so I don't know exactly what he did.
BY MR. THOMAS:
Q. Okay. Going back to Exhibit No. 9, which is the presentation you made at the IUGA meeting, I want to talk generally about the testing that you conducted with Dr. Dunn.
A. Okay.
Q. Whose idea was it to conduct that testing?
A. It was probably both of ours. I -- I knew of this oxidative medium that was developed by Dr. Jim Anderson in the 1990s. He did some -- so I was aware of that in my own research. Like I said, I've published a couple papers on it, so I knew of the methods. And then I -- we talked with Dr. Dunn about how to actually do the experiment.
Q. Who's "we"? Who talked with Dr. Dunn?
A. Well, I meant Dr. Dunn and me. I mean, we talked --
Q. Okay. Did you have a -- I'm sorry.
A. Yeah, we -- we discussed it together.
Q. Did you have any discussions with plaintiff's counsel about conducting these kinds of experiments?

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MR. BOWMAN: Object to form.
THE WITNESS: I don't remember. Maybe. I just don't remember what we -- it's been a while.
MR. THOMAS: Okay.
THE WITNESS: We did it on our own. I mean, he paid for it. It was our idea. We did it. It was not billed to the litigation.
BY MR. THOMAS:
Q. I guess my question is, do you recall having any conversations with plaintiff's counsel about conducting this kind of experiment that's in Exhibit No. 9?
A. I just don't remember. I don't -- I don't...
Q. You talked before about a graduate student in your office doing the protocol for the test?
A. What do you mean by "before"?
Q. At the Perry deposition.
A. Yeah. Yeah.
Q. And how was it that you happened to ask your graduate student to prepare the protocol?
A. Well, she was doing testing for some of her materials on the -- I don't remember the timing of everything, but she was -- she was

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doing -- she was using this medium to test her materials as part of her dissertation, and so she had access to the material, the medium. And so my students, I typically ask them to write what we call standard operating procedure, SOP. We -- we write those documents for the common procedures that we do in the lab, and then I review them and approve them. So it was part of her research. You know, she was doing research in this area, so that's why she was involved, I think. I can't remember the details.

Q. Now, the protocol calls for testing after six weeks?

A. I don't remember.

Q. Do you remember --

A. I'd have to look at it. I can't remember the timing.

Q. We'll get to that in a minute.

Do you remember why you chose the period that you did?

A. You know, I think we probably wanted to -- we were expecting to see changes within about a month, so we figured if we go out six weeks, we would see it, I think.

Q. What kind of changes were you expecting to

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see?

A. Well, changes in the -- in the carbonyl and hydroxyl peaks on the surface of the fibers, the FTIR. And SEM, you know, looking for degradation by SEM. So that's what we were expecting to see.

Q. And did you find changes in the carbonyl and hydroxyl peaks for the mesh from the -- strike that.

Did you find changes in the carbonyl and hydroxyl peaks consistent with oxidative degradation from the TVT mesh that you sampled?

A. I believe so, but I'd have to look at the data again. I mean, this wasn't in my report, so I didn't really review any of this stuff.

Q. Well, let's look at the -- let's look at the conclusion of Exhibit No. 9.

A. Yeah.

Q. You say here in the conclusion that "Oxidative degradation of polypropylene, PP, mesh" --

A. Yeah.

Q. -- "was evidenced by chemical and physical changes under simulated in vivo conditions"?

A. Mm-hmm.

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Q. Now, the simulated in vivo conditions is placing pieces of mesh in this medium, correct?

A. That's right.

Q. What chemical changes did you find in the polypropylene mesh that you tested?

A. Well, that would be in the -- in the figure that's shown here. I'm just trying to refresh my memory. But I believe this figure, we don't -- let me just make sure that I -- I say it correctly. I don't believe this abstract says exactly what these data in Figure 1 are for, but -- so I don't know if it's TVT or a different mesh. But at the zero weeks, we don't really see hydroxyl or carbonyl peaks in the IR spectra, and at five weeks we do.

Q. So the first figure on the second page of Exhibit 11 is at zero weeks?

A. Yeah. So if you look on the SEM image, it says "zero weeks" in the top left corner. That's zero weeks. So there's really no appreciable carbonyl or hydroxyl peaks in the IR spectra.

Q. And so the second figure on the second page of Exhibit 9, is that meant to be a polypropylene mesh FTIR?

A. It was not meant to be, it is. So --

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Q. So that's an F -- that's a --

A. That's an FTIR scan of -- of a polypropylene mesh -- I don't know the manufacturer -- that was incubated in the oxidative medium for five weeks.

Q. Okay. So the peaks that are shown in the second page of Exhibit 9, on the left you circle, and it says, "Hydroxyl (OH formation.)"

What does that show you?

A. That -- well, that's a -- that's where the hydroxyl peak appears in the IR spectra.

Q. Okay. And that's evidence to you of oxidative degradation?

A. Yes.

Q. And the second peak marked there is carbonyl formation, an arrow and a circle. What does that represent?

A. Well, that's the formation of the carbonyl peak in the IR spectra.

Q. And what you're trying to show to the reader of this abstract is that your FTIR data on polypropylene pelvic mesh showed these peaks at five weeks; is that correct?

A. Yes.

Q. And on the right is an image that shows

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five weeks. And is that the SEM imaging?
A. It is.
Q. And, again, you're trying to show the readers that at five weeks that the polypropylene mesh that you tested looked like this under SEM?
A. That's right.
Q. Okay.
MR. THOMAS: Let's go off the record. I need to take a break, please.
(Brief recess observed.)
BY MR. THOMAS:
Q. Doctor, going back to Exhibit No. 9, those images at the end that we've just been talking about --
A. Yeah.
Q. -- where you identified for me the FTIR, the polypropylene mesh, what's your basis for your understanding that the peak on the left is -- I think you called it -- is that hydroxyl? Is that the word you used?
A. Hydroxyl peak.
Q. And the peak on the right, I think we called it a carbonyl peak; is that correct?
A. Yes.
Q. What references did you use in order to

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understand that?
A. I -- I don't remember right now. The -- there are tables that list where these different peaks occur in materials. I don't remember exactly which reference we used. I mean, this is...
Q. I know very little about FTIR. What I do know is that there are standards or tables that you look at --
A. Right.
Q. -- in order to identify different kinds of levels within the FTIR, correct?
A. Right.
Q. And do you recall as you sit here today what you consulted in order to understand what those peaks meant?
A. The specific reference?
Q. Yes.
A. I don't remember the specific reference that we used. I mean, Dr. Dunn I know has references on these. I guess I've just been doing it so long, I just know that that's where hydroxyl shows up. And that's -- carbonyl's in the 16, 1700 inverse centimeters range, and this hydroxyl's in this 34, 3500. It's a broader peak.

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I mean, I know there's references on this. I -- I don't remember exactly which specific one. I mean, they're probably cited in some of my papers.
Q. Okay. And do you remember presenting these slides as a part of your presentation?
A. Well, it wasn't this -- I mean, you have the slides, so it was -- it was similar. It was FTIR data and SEM data. That's what I showed. I didn't present the XPS. Just a FTIR and the SEM is what I showed.
Q. Okay. Let's go back to the first page of Exhibit No. 9, down under "Results."
A. Okay.
Q. And midway through that paragraph it says, "The dramatic increase in the size of the dash 0H and C" -- I think that's called --
A. That's the carbonyl.
Q. "Double -- double bond O peaks from four (not shown) to five weeks is indicative of chemical induction."
And what you're referring to is the -- again, that image on the page 2 of Exhibit No. 9?
A. Yeah. I'm going from memory because this wasn't in my report, and I'm not relying on it in this case. But, I mean, what -- what I remember

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is that the -- the -- the peaks up to about three or four weeks were really negligible. And then it just says here, four to five weeks, we saw a substantial bump. And this is what's referred to in Liebert's previous paper about induction, where you have a substantial increase in the amount of carbonyl and hydroxyl groups on the surface. That's where -- the basis of that statement.
Q. I don't want to go into great detail on that --
A. No, I know. Yeah.
Q. -- because I don't want to replow this ground.
A. Yeah, I understand.
Q. But chemical induction is -- is basically the tipping point, isn't it?
A. Tipping point? It becomes autocatalytic. Is that what you mean?
Q. Is that how you'd describe it?
A. That's how I would -- I mean, it -- my understanding is that you get so many hydroxyl and carbonyl groups on the surface that they -- they -- they just -- they start catalyzing this reaction and it becomes much faster, so you start forming more at a faster rate. That's the idea of

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induction that's --
Q. And at that point --
A. -- taught by Liebert and others.
Sorry.
Q. My fault.
And at that point, you would lead to the embrittlement, cracking, and failure?
A. Yes. Once it becomes induced, then degradation sets in. Embrittlement, cracking, those are all the things that are discussed in the report.
Q. And why did you stop at this point? Why didn't you continue testing?
MR. BOWMAN: Object to form.
THE WITNESS: I don't remember the details, but we just didn't have that many samples. We were limited on samples. We had an examplar. We didn't have a lot of material. We wanted to have replicates. We expected to see oxidation within a month, so we didn't want to miss it, so we sampled weekly. And we just didn't have that much material. That's what I remember, but, again, I haven't reviewed these documents because it's not part of my -- it's not part of my report.

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(Marked Exhibit 12.)
BY MR. THOMAS:
Q. Doctor, I'm going to hand you what I've marked as Exhibit No. 12. And Exhibit No. 12 is a set of the documents that you produced to us in the Perry case --
A. Yeah.
Q. -- and which I assume to be a complete set of what is on that link that I've just received.
The only thing that's different about these documents is that we've numbered them so that they're available for easier reference. What you supplied to us was not numbered, and so we've had them numbered sequentially from 1 up to 214. And I want to ask you some questions about these documents.
A. I mean...
MR. BOWMAN: How did you say they were numbered? You just put them in the same number that they were given to you in the folders?
MR. THOMAS: We received them electronically, and then we just numbered them sequentially as we received them. See the lower right-hand number?
MR. BOWMAN: Mm-hmm. You put a Bates

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on them?
MR. THOMAS: Well, it's not a Bates. It's just a number. Whether that's a -- I guess that qualifies as a Bates. Just so I can call out a page number and make a better record of what he's looking at.
(Marked Exhibit 13.)
MR. THOMAS: Fair enough?
MR. BOWMAN: Yes. But I need to object as -- you know, this isn't part of his report, and we do have a lot to get through, but...
MR. THOMAS: Oh, we'll have plenty of time today.
MR. BOWMAN: Yeah.
MR. THOMAS: I'm not worried about finishing today on time. Matter of fact, I'm hoping to catch an earlier flight.
BY MR. THOMAS:
Q. Let's go to page 11, please. Page 11, does that show one of the vials with the mesh in the oxidative medium?
MR. BOWMAN: Object to form.
THE WITNESS: That's what it appears to be.

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BY MR. THOMAS:
Q. Okay. And take your time looking through this as you want to. I know you haven't seen it in a while. I -- the first several pages were just a bunch of empty vials, and that's why I didn't ask you any questions about those. Those are you photographing all of the vials that -- --
A. I mean, this --
Q. -- you used?
A. -- is all Dr. Dunn's work, so I -- you know, I -- I don't know exactly what he did here because I didn't review it for this. So, I mean, these all look like vials that he used for the experiment and took a picture of.
Q. Okay.
MR. BOWMAN: Yeah, and that's part of my objection to the document, is that, you know, he's already testified that he didn't take these pictures, that this wasn't --
MR. THOMAS: That's fine.
MR. BOWMAN: -- actually produced. I think it was produced in -- in --
MR. THOMAS: In Perry.
MR. BOWMAN: -- the Perry case. But I don't know that he can

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authenticate a single document in here. I don't know any of that.
MR. THOMAS: Well --
MR. BOWMAN: And, honestly, I don't know the paging numbers or the system that --
MR. THOMAS: Well, I -- your objection's preserved. If he can answer the questions, great. If he can't --
MR. BOWMAN: Great.
MR. THOMAS: -- that's fine too.
MR. BOWMAN: Thank you.
BY MR. THOMAS:
Q. On page 13.
A. Okay.
Q. Page 13 is a container labeled "AT oxidative media 9." I think that's 16/14, almost a year ago today.
A. Okay.
Q. Do you recognize that as being the media that was used?
A. I don't know. I mean, I didn't do this. So it's -- the medium has this kind of color.
Q. Okay.
A. Where this came -- I don't -- I can't really say. I don't know.

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Q. On the left is "AT." Do you know what the AT is? Is that the initials of the graduate student?
A. Those are her initials.
Q. Do you know if that's why that notation is there?
A. I have no idea why it's there.
Q. On the bottom of that bottle is a white thing. Do you know what the white thing is?
A. Again, I don't know because I didn't actually make this, but it appears to be -- it might be a magnetic stir bar. I don't know.
Q. Okay.
A. With a Teflon coating. I don't -- that's what you'd typically use.
Q. On page 15, 15 shows a series of these containers with what appears to be oxidative media with pieces of TVT in them. Is that what you recollect to be part of the experiment?
A. That's what it appears to be.
Q. Okay. And then you go to page 17. Page 17 shows the bottles, and it has three -- one, two, three are empty. Do you know why those three are empty?
A. Again, I did not take these pictures, make

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these vials. I don't know. I can't explain these things.
Q. All right. Now, if you go to page 25, page 25 shows what?
A. So the -- the PP standard, I believe -- but, I mean, this is an incomplete document, so, I mean, I don't have the whole thing. But I -- it may be what he was -- it looks like what he was calling is the -- is the polypropylene standard that didn't have stabilizer in it.
Q. Okay.
A. That's what I believe that is, but I don't know.
Q. And we get back there and we have all the other documents, I think that confirms that, but I --
A. Okay.
Q. I thought you -- I think that's exactly right.
A. All right.
Q. And so the bottle on the left which has the number 68 at the top is a container of the unstabilized polypropylene?
A. I believe that's what it is, but...
Q. And the vials that are off to the right,

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the six of them, are the unstabilized polypropylene in the oxidative medium; is that correct?
A. I believe so. Again, I didn't do this, so --
Q. Okay.
A. -- I'm speculating.
Q. And if you go to page 40, do you see page 40? This is the first FTIR. What do you call this? A spectra or spectrum? What's the right word to used?
A. This would be an FTIR spectrum.
Q. Okay. The FTIR spectrum up in the upper left-hand corner is identified as No. 10. Do you know what happened to weeks 1 through 9 -- excuse me.
Do you know what happened to FTIRs 1 through 9?
A. No. Again, this is Dr. Dunn's data, so I don't -- I don't -- I don't know.
Q. We talked before about standards that people use when they do FTIR where they compare their spectra to a library standard or to an industry standard to see how it matches with that library standard. Are you familiar with that

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process?
A. Yeah, I'm familiar with that.
Q. Do you know whether Dr. Dunn did that in this case?
A. I don't know.
Q. Did you have discussions with Dr. Dunn about that?
A. I don't remember the discussions with Dr. Dunn. I...
Q. As you look at the upper-hand left, this is the PP standard 1. So this is going to be the unstabilized polypropylene, correct?
A. I believe so.
Q. All right. And as I look at the spectra -- spectrum, it shows two peaks, one at 2800 to 3000 and one at about 1300 to 1500. What does that tell you?
A. Well, I mean, I believe those are peaks associated with the structure of polypropylene. But I don't -- I don't remember the actual bonds they represent. I'd have to look at those. I don't remember that.
Q. There's a peak that appears right around 23 -- excuse me, 22 to 24. Do you know what that represents?

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A. I can't remember. I'd have to look at it.
Q. And the reason why I ask is, if you go to the next page, and you go to a standard polypropylene sample, it doesn't have that peak. Any explanation for why those peaks are different, even though it's a standard that's tested at week zero?
A. I mean, I don't remember. I haven't reviewed this. I don't -- I don't remember.
Q. Well, as a person who conducts FTIR, do you have an explanation for -- for why two samples of the same material would have different FTIR at the same time?
A. I'd have to look at the details. I don't -- I don't --
Q. What other details would you have to use, look at?
A. I'd have to look at what other peaks show up in that wavelength. I mean, I just -- I'd have to review it. I don't have all those things memorized. I mean, it's --
Q. Okay.
A. -- a lot of different...
Q. Let's look at pages 42 and 43. 42 and 43 are FTIRs 12 and 13. And they are run 1 and run 2

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of a TVT sample at week zero, correct?
A. That's what it says.
Q. Okay. If you look at the difference between pages 42 and 43, there's a -- a significant peak at about 2300 in run 2 that is not present in run 1. Do you know what that peak is on -- in FTIR 13 for run 2? Do you know where that is and what that indicates?
A. I said before I have to look -- look up what bonds are absorbing in that. I don't remember the -- the bond that absorbs at that wave number. I'd have to look at it.
Q. Do you know why there's a differences between what is the same sample run at different times?
A. No. I didn't run the samples, so I -- I mean, this is somebody -- this is Dr. Dunn's --
Q. Is the --
A. -- data.
Q. -- difference -- I'm sorry. Go ahead.
A. I mean, it's his data. I don't -- I don't know.
Q. Is the difference in the peak that appears in image 13 compared to image 12 evidence of contamination of the sample?

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A. I don't know. I don't -- I didn't do it.
Q. Let's go to page 52. Page 52 is week -- week 1, TVT 5. That would be the sample number for the TVT, correct?
A. That's right.
Q. Run No. 2. So a week into it, you see a peak again at around 2350 that goes straight down. What's going on there?
A. You're focusing on the wrong peaks. I'll just say that, but...
Q. Well --
A. So -- okay. I didn't do this work. It's uncomfortable being deposed on something that wasn't in my report, I wasn't really prepared to review, and I just had a document thrust in front of me with no references to check. But I know there can -- we typically purge these things with nitrogen, and there can be some carbon dioxide. This -- this might be in that range because when we do the urethane reactions, there's a big NCO peak at 2200 inverse centimeters, and we watch the size of that peak decrease. And we have to be careful sometimes about -- it could be -- I think it might be background CO2 that's shifting that up and down. It looks like it's in that same range,

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but I'm speculating. I have to check my references. But I know we sometimes have to make corrections if it's not completely purged.
Q. What do you do to make corrections? How do you do that?
A. Well, when you integrate the peak areas, which we didn't do in this study, but when you're -- when you're tracking an NCO reaction and the -- you're watching the NCO peak decrease -- I'm just going to pull out my paper because this may take a little while. Let me find my -- I wonder if it's in here. It may not be. Let's see.
On page 42 of my CV is where we studied the reactivity of these injectable polyurethanes, and we're still doing this work. And if we want to measure a reaction rate constant, you have to measure the rate of disappearance of that peak, and so we have to do baseline corrections. It's an established thing that's done. You do a baseline correction to correctly integrate the area under those peaks. And I think this is like -- has something to do with the carbon dioxide that may be in the -- in the environment if it's not completely purged with nitrogen, but I

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can't remember the details. But I have seen this type of thing before where it can flip up or down and -- but it doesn't have anything to do with a carbonyl or a -- or a hydroxyl group. It's -- but, again, I'd have to...
Q. Okay. On the right at about 1600 there's another peak that wasn't there before. What is that? And I'm referring now to FTIR 34 --
A. Yeah.
Q. -- on page 52 of Exhibit 12.
A. I'd say it's about 1650. And this is consistent with some -- I'm just going to have to go to some Ethicon documents here, so it's going to take me a few minutes. If you want to go through these spectra like this, I need some time to -- because I wasn't prepared for it.
Q. Do you know what this peak is as you look at it?
A. It's -- I believe it's the carbonyl. But I'm going to give you some exact peak numbers that were reported in Ethicon documents for -- for carbonyls, aldehydes, ketones that can form on polypropylene when it's being oxidized.
Q. Okay. You can do that if you like. But do you know as you sit here today whether the peak

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that appears on the right at around between 1500 and 1800 is a carbonyl peak? Is that what your testimony is?
A. Wait a minute. I need to look. I need to look for a minute. This isn't a memory test.
Q. It's at week 1.
A. You know, I -- I really -- I'm uncomfortable -- you're just, like, turning the pages in this document. If we're going to go through this document, I need some time to sit down and look at it because I feel like I'm being ambushed here. I'm trying to -- you're trying to trap me or catch me in saying something. I need some time to review this because it's not on my reliance list -- I mean it's not in my report. I didn't come here prepared to talk about this. We didn't produce this as evidence. And this is the first time I've seen this. I need some time to go through it and refresh myself with it because I don't think it's fair to just have to go through page by page, tell me what this peak is, tell me what this peak is. I need to have to be able to review that.
Q. Let me ask you this, Doctor. I'll stop doing that except for a couple, and we'll talk

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about them here in a second.
A. Okay.
Q. I won't put you through this. But if you look on the upper left-hand corner of these FTIR spectra, you see identifying numbers, correct?
A. What do you mean "identifying"?
Q. PCT-168. See that?
A. Okay.
Q. What does that mean?
A. I don't know. You'd have to ask Dr. Dunn. That's a number that he --
Q. Assigned to the test?
A. I assume, but I don't -- I don't know. You have to ask Dr. Dunn why that says PCT-168. I didn't write that.
Q. Okay. And as you look over, you see the FTIR, and that's the number of the image, correct?
A. I don't know. It says 0034. I don't know what that number is.
Q. Well, then it says -- after 0034, it says what week the test was run, correct?
A. It says week 1, so I'm assuming that was the week 1 sample.
Q. And TVT 5 would be the TVT 5 sample number, correct?

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A. I don't know.
Q. That's the bottle which we looked at a minute ago with the number on it?
A. It could be, but I don't know. This is --
Q. Do you have any other explanation for it?
A. I said I don't know.
MR. BOWMAN: Object to form.
THE WITNESS: I don't know.
BY MR. THOMAS:
Q. And run No. 2 means it's the second run on that sample, correct?
A. I don't know. I don't know what any of this means. I didn't write it.
MR. BOWMAN: Just for the sake of trying to clear something up, I can -- I can stipulate that PCT-168 is how Dr. Dunn recognized his work done in the Ethicon litigation.
MR. THOMAS: Thank you.
MR. BOWMAN: Okay.
BY MR. THOMAS:
Q. Let me go to page 78, please.
A. I thought we were done with this.
Q. I said I needed to ask you a couple of questions.
A. Well, then I need to review this stuff.

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Q. Just -- I'm just -- this is the image that appears in your report, in your publication. Are you not going to answer the questions about it?
A. Is this for Exhibit 9?
Q. Yes.
A. I mean, I need time to review it. I mean, I didn't really look at this because it wasn't even part of the report. I mean, it's -- I don't understand the purpose of this. I mean...
Q. Doctor, if you're not going to answer the question, you tell me, and we'll be fine with it. If you tell me no, then it's no, and I can move on.
A. I can't -- I need time to look at it. I'm not going to answer yes or no without time. You put these two things in front of me that I haven't really looked at for months and ask me -- I don't know. I need -- I need time to look at it and think. I can't just...
Q. Can you look at the image on page 78, which is FTIR 78, week 5, TVT 28, run 1, and tell me if that's the same image that appears in Exhibit No. 9?
A. I can't tell that it is or it isn't. I'd have to confirm with Dr. Dunn where that image --

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which one of these spectra it is. But I'm not just going to look at a picture in this book you just gave me and a small picture from an abstract and say. I don't know. I need to review that.
Q. Doctor, I'm not going to argue with you. I hear what you're saying, and I'll stop asking questions. But for the record --
A. Well, you said that five minutes ago.
Q. Excuse me. Excuse me. For the record, these are documents that you produced to us both in the Perry case and today by a link, and so I -- I -- I was hoping that we could answer questions about them and -- we'll just have to come back later.
A. That was the Perry case. This is a different case. These documents weren't...
Q. They weren't available in the Perry case because you gave them on a thumb drive and we didn't have them to put -- --
A. They were --
Q. -- in front of you. They were on a thumb drive.
A. They were on a thumb drive -- I don't want to get angry, but he spent two hours going through this with me, and I told him the same thing. If

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you want to know about these documents, you have to depose Dr. Dunn because I didn't do these measurements, I didn't write these spectra. I didn't do it. I got data from Dr. Dunn for -- for this abstract, but I don't know what the source data is. He's the one that knows all of that. I said that in Perry. Nobody wanted to depose Dr. Dunn. So I don't understand why we're doing this again. It's a rerun.
Q. Okay. Let's go to page 188, please. Pages 187 and 188 of Exhibit No. 12 are a report dated November the 6th, 2014, from Professor Bridget Rogers to -- to Russell Dunn. You've seen that before, correct?
A. Yes.
Q. Are you able to answer questions about the findings on page 188 of Exhibit No. 12? The XPS findings?
A. No. I didn't review it. I need -- if we're going to talk about that, I need a break to review these. I will answer them if I have time to review them, but I'm not going to answer them right now. I need time to review it. This was not -- I'm not relying on this for this case. It was produced in Perry. It wasn't brought up in

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trial. No deposition of Dr. Dunn was taken. So I don't understand why I'm being asked these questions again. It doesn't seem reasonable to me. And if you want to ask me about it, I need time to look through this book, look through my notebook. I can write down -- write down all the peak numbers and -- and give you a story, but it's going to take me a couple of hours to do that. And I don't -- I don't know that you want to do that today.
Q. Well, I don't want to waste my time or your time.
A. I live here. I'm here all day til 5:30, so we can do it if you want to. But I don't want you to be trying to give the impression that I don't know how to read FTIR spectra just by putting a book in front of me that I haven't seen.
Q. Please don't read anything into my questions. I'm just asking --
A. Well, that's the way it comes across. I'm sorry, but --
Q. Well, that's not my intention.
Let me ask you this question. Are you able, without spending a couple hours going through this information as you've just described,

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to tell me what it is about the data in Exhibit No. 12 that you believe shows that polypropylene -- excuse me, that Ethicon TVT mesh underwent oxidative degradation that's indicative of chemical induction? Are you able to do that without spending the time looking at the report?
MR. BOWMAN: Object to form.
THE WITNESS: I'm not willing to do that without reviewing these documents because I did not rely upon them for my opinions.
BY MR. THOMAS:
Q. Okay. It's not my intention to aggravate you or frustrate you. It is my intention to get the best answers I can based on the information I do -- I'm not going to argue with you.
A. I don't want to argue either, but I -- I'm just not prepared. I didn't rely on them. They're not in my report. If you want to ask me questions about it, I need time to review it. I think that's reasonable.
Q. Okay. Doctor, I'm going to hand you now what's been marked as Deposition Exhibit No. 13. Deposition Exhibit No. 13 is a study titled "Materials Characterization and Histological Analysis of Explanted Polypropylene, PTFE, and PET

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Hernia Meshes from an Individual Patient."
Have you seen that before?
A. Yes.
Q. If you go to page 1117 of Exhibit No. 13, are you familiar with this in Figure 3, the ATR-FTIR scan?
A. Yes.
Q. And do you see there the indication that -- the carbonyl peak at 1740?
A. Yes.
Q. And you understand that Wood concludes in this article that the carbonyl peak at 1740 is indicative of polypropylene oxidation and degradation?
A. That's his conclusion, I believe.
Q. Do you agree with that?
A. Yes.
Q. Is -- is that the best evidence that you know of of oxidative degradation and a carbonyl peak at 1740?
MR. BOWMAN: Object to form.
THE WITNESS: No. As I was saying earlier, these peaks can shift. I mean, and Dr. Burkley has some notes where he talks about ketoesters, sugar-like species, acrylic species

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that have absorptions in the 16 to 1700 inverse centimeters. So -- so the peaks can shift. It's -- it's...
BY MR. THOMAS:
Q. Do you --
A. It's the nature of the work.
Q. Okay. Do you know whether Dr. Burkley is correct? Do you have any independent knowledge of these peaks to know whether Dr. Burkley is correct in those documents?
MR. BOWMAN: Object to form.
THE WITNESS: Others cite these ranges as well. You can see these carbonyl species in the 1600s, you can see them in the 17. Urethane carbonyl we see in my materials at 1720, 1730 inverse centimeters. But they -- they can -- they can shift depending on -- it's just -- that's just the nature. It's a complex reaction, and there's lots of species that are formed.
BY MR. THOMAS:
Q. So of what benefit to you is FTIR if these numbers can shift?
A. Well, you're not going to see -- I mean, if you -- the standard poly -- the pure polypropylene that's not been oxidized is not

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going to show those peaks at those wave numbers. It's going to be, you know, the -- the ones that we saw in that book you were showing me, more 1500. You're not going to see this broad peak at 3400 and you're not going to see this carbonyl peak because if it doesn't have any oxygen, you're just not going to see anything there. When you start seeing peaks show up in that region, that tells you that there's oxidation.
Q. What's the peak for DLTDP?
A. I don't remember. I'd have to look at -- Dr. Burkley had some comments on that. It may have been in that 1740 region. I'd have to look.
Q. That's fine.
A. Well, okay. I found the document, actually. So Mr. Burkley says that there is a 1740 inverse centimeter band due to the -- the DLTDP antioxidant.
Q. Okay.
A. In the --
Q. I'm sorry.
A. In the eight-year sample spectra, he didn't see it in the scrapings because, obviously, it had been degraded by oxidation. But then he says the 1718 -- and I see this in my own work,

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this 1718 inverse centimeters is a carbonyl band most likely associated with esters like my materials can be associated with acids. The 1638 and the 1618, these are beta ketone esters, acids, acrylics. It's just -- there's -- there's a number of oxidized species that can absorb in that range. That's -- that's what I'm saying.
Q. Okay. The Wood article is the only source that I found in the information that you provided to me that is suggestive of where one would expect to find a carbonyl peak for oxidative degradation. Are you aware of any other studies?
A. Well, there's the Ethicon studies, the Ethicon -- --
Q. I'm not talking --
A. -- documents.
Q. -- about Ethicon papers now. I'm talking about peer reviewed publications on which you rely.
MR. BOWMAN: Object to form.
THE WITNESS: There's Clavé. Clavé did FTIR.
BY MR. THOMAS:
Q. Okay.
A. I need to look and see where he was seeing

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peaks.
Q. You remember Clavé couldn't confirm degradation by FTIR? Do you remember that?
A. Well, that's what he said, but I believe it's --
Q. Do you think he's wrong?
A. I'm not saying that he's wrong. I'm saying that he -- he wrote that. That's what he wrote in his paper, but I -- I believe that that's absorbing in the -- in the -- I need to find the number. That's absorbing in that same range. Let me just find the number.
Q. Let's go -- I'll mark that as -- where are we? 13?
A. But I -- just for the record, I have testified about all this before, these papers. I have.
Q. You brought it up. You said Clavé made some finding about oxidative degradation by FTIR. And if you look at page 267 of the study, it says, "Direct oxidation of the polypropylene, the FTIR analysis neither confirmed nor excluded oxidation of polypropylene in the in vivo environment." Correct?
A. That's what he wrote.

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Q. Okay.
A. But, again, I mean, I -- I've been asked questions about these papers many times.
Q. Okay. I'm not going to -- and I didn't intend to ask you about it until you brought it up.
A. Well, you brought it up. You were asking about FTIR.
Q. Okay. When you and Dr. Dunn did your testing that we talked about in Exhibit No. 12, did you discuss conducting any molecular weight tests?
A. We did, and there -- there just wasn't enough sample.
Q. Okay. Did you discuss doing any other analytical chemistry tests on the samples?
A. I don't remember. The FTIR, the XPS, and the SEM seem to be the -- the best we could do with the materials that we had.
Q. Okay. Did you and Dr. Jordi -- excuse me. Did you and Dr. Dunn ever discuss doing analytical chemistry testing on actual Ethicon mesh explants?
A. I think that we -- I -- I don't know if we actually did for Ethicon. I can't remember.

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Q. You did for other manufacturers. We talked about them before. I'm not going to plow that ground again.
A. We did do for -- there was another report where we did that, but I don't -- I can't remember specifically if we had a discussion about doing that for an explant for an Ethicon case. I can't remember.
Q. Do you know Howard Jordi?
A. Yes.
Q. Have you met Dr. Jordi?
A. I've not met him. I know who he is.
Q. Have you read his reports?
A. It's been a while.
Q. Have you read his expert witnesses reports that he submitted against Ethicon?
A. I believe so, but not recently.
Q. Okay. And you're aware of the molecular weight testing that he conducted on the Ethicon meshes?
A. I don't remember his molecular weight testing.
Q. What -- what testing do you remember that he conducted?
A. I thought he did some pathology similar to

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what Dr. Iakovlev did, but I don't -- I don't remember the details of what -- I know he talked about oxidation, but I just can't remember the details of what he did.
Q. Do you know he's an expert witness in this case?
A. I didn't know that, but...
Q. Did you know he submitted a report in this case?
A. If he had, I don't remember looking at it.
Q. Do you know the extent to which findings that he makes in the work that he's done on Ethicon mesh are consistent or inconsistent with your work?
MR. BOWMAN: Object to form.
THE WITNESS: I don't know.
BY MR. THOMAS:
Q. Do you know the extent to which the findings that he made in his work in this litigation are consistent or inconsistent with the work of Dr. Iakovlev?
MR. BOWMAN: Object to form.
THE WITNESS: I don't know that either.

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BY MR. THOMAS:
Q. Let's go back to Exhibit No. 9, please. Dr. Guelcher, in Exhibit No. 9 we talked a minute ago about the oxidative media in which you placed these TVT meshes for a period of up to six weeks.
A. Mm-hmm.
Q. What would happen if this oxidative media in that form was placed in the body?
MR. BOWMAN: Object to form.
THE WITNESS: What do you mean if it were placed in the body?
BY MR. THOMAS:
Q. If -- if you cut somebody open in the pelvic floor and placed this oxidative media in the pelvic floor, what would it do to tissue in the body?
MR. BOWMAN: Object to form.
THE WITNESS: Why would you do that? This -- that's not what it's intended to do. It's intended to simulate the privileged microenvironment between the adherent macrophage and the biomaterial surface. So it doesn't -- you would never -- it's a -- it's a -- to just pour it in the pelvic floor, I don't -- I don't get it.

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BY MR. THOMAS:
Q. Well, whether you get it or not, do you have a -- do you have any idea about what would happen if you introduced this oxidative solution into the tissue in the pelvic floor?
MR. BOWMAN: Object to form.
THE WITNESS: It would oxidize tissue.
BY MR. THOMAS:
Q. It would kill tissue?
A. That's what -- I mean...
Q. Yes?
A. I mean, it would react. I don't know what -- I don't want to use the word kill tissue, but it -- there would be a reaction with the tissue.
Q. And what kind of reaction would take place?
A. An oxidative reaction.
Q. And what would that do to the tissue?
A. I don't know. I've never done it. I don't -- I don't know why anybody would do that. That's not what this medium is intended to do.
Q. Well, it is trying to replicate the in vivo conditions, correct?

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A. No, that's not what I said. I said it's replicating the privileged microenvironment between an adherent macrophage and a surface that it's attached to. That's what's in my report.
Q. So just so I'm clear, this oxidative...
A. Well, that's what it says here: "Simulates the microenvironment between an adherent macrophage and the biomaterial surface."
Q. So --
A. So it's contained at a very specific location. It's not just dumped all over the body.
Q. Okay. So it does not replicate what happens when mesh is placed in the body; is that fair?
A. No, that's not fair at all.
MR. BOWMAN: Object to form.
THE WITNESS: I've already answered the question. It replicates -- when mesh is placed in the body, the surface is populated by adherent macrophages, and there's a privileged microenvironment between that macrophage and that polymer surface, and that area is exposed to a -- a medium like this. That's what this is -- this is what Dr. Anderson showed in the '90s, is that he could reproduce in vivo oxidation by using

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accelerated in vitro test in this medium. I don't know how else to say it.
BY MR. THOMAS:
Q. Okay. But you agree it's a bad idea to introduce this oxidative media into the body just by itself?
MR. BOWMAN: Object to form.
THE WITNESS: There's no reason to do it.
MR. THOMAS: Okay.
THE WITNESS: That's not the purpose of the test.
BY MR. THOMAS:
Q. Doctor, do you know what protein adsorption is?
A. Yes.
Q. What is protein adsorption?
A. Well, proteins adsorb to a surface.
MR. THOMAS: That's A-D, adsorb, as opposed to absorb.
THE WITNESS: Proteins adsorb to a surface. If you implant a biomaterial, there's proteins that adsorb to the surface.
BY MR. THOMAS:
Q. And those proteins adsorb to the

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biomaterial surface before the macrophages get there, don't they?
MR. BOWMAN: Object to form.
THE WITNESS: Well, they -- they mediate cell attachments, so the proteins adsorb first and then the cells can attach.
BY MR. THOMAS:
Q. Okay. And is the adsorption a chemical reaction?
A. Well, adsorption can be physical or chemical. It can be a -- physisorption would be a weak bonding, like van der Waals forces, ionic interactions. That could be a reversible, we call, physisorption. Chemisorption is when it adsorbs and there's a chemical reaction. So it could be either one.
Q. Have you studied the extent to which proteins adsorb onto TVT PROLENE mesh upon implantation in the body?
A. Have I studied that? What do you mean by that?
Q. Just that. Have you looked at that issue?
A. Have I looked at it?
Q. Yes.
A. Well, I mean, there are -- it's a

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well-known fact that protein adsorbs to many polymers.
Q. And you would expect --
A. So it's in the Ethicon documents. It's in the papers. I've published papers with protein adsorption data. It's -- it's a well-known phenomenon.
Q. And you would expect upon implantation for proteins to adsorb and bind to the PROLENE polypropylene, correct?
A. Yeah. They would adsorb to the surface.
Q. And create a bond with the surface that varies in strength depending on the circumstances of the adsorption, correct?
A. That's reasonable.
Q. And that that bond will keep those proteins on the polypropylene until they're removed?
MR. BOWMAN: Object to form.
THE WITNESS: I mean, it's reverse -- if it's reversible adsorption, there's an equillibrum. So the amount of protein in concentration in the liquid is going to have an effect on the amount of protein that's adsorbed on the surface if it's a physisorption. And, you

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know, they would -- when you remove the tissue, you're most likely removing these proteins, and this is -- this is what Dr. Iakovlev was doing, removing the tissue.
BY MR. THOMAS:
Q. Dr. Iakovlev --
A. I don't know what you're asking.
Q. Dr. Iakovlev doesn't remove any tissue when he does his tissue samples, does he?
A. I was referring to the -- to the XPS measurements that we did. He manually dissected them so we could do the XPS. That's what I was -- the context of what I was saying.
Q. Okay. But until these adsorbed proteins are removed from the polypropylene, they're bound to the polypropylene, aren't they?
A. Yes. And you can remove them. There was some work done at Ethicon removing them with solvents. And the conclusions in those documents is there's a mix of protein and oxidized polypropylene on the surface. This idea that the -- and that the -- that the polymer is degrading, oxidizing, it becomes porous, and then proteins can get trapped in there. And so the conclusions from a lot of Mr. Burkley's studies is

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it's a mixed of protein and oxidized polypropylene.
MR. THOMAS: Move to strike everything after "yes."
THE WITNESS: Why?
MR. THOMAS: Because the rest of it's not responsive.
MR. BOWMAN: And just FYI, he's asking you questions, you're not allowed to ask him --
THE WITNESS: Okay. I'm sorry. I thought we were talking about protein adsorption.
MR. BOWMAN: I have to amend my stipulation earlier. PCT-168 actually refers to Dr. Dunn's file on Boston Scientific, not Ethicon. I apologize for that.
BY MR. THOMAS:
Q. Okay. I have to ask the question then. Is PCT-168 testing Ethicon meshes or Boston Scientific meshes?
A. I don't know. That's Dr. Dunn's numbering system. I don't -- I don't know what --
Q. They call it TVT.
A. I mean, if you really want to know, you should depose Dr. Dunn about it. I don't --

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that's what I said in December. I don't know.
Q. Okay. Doctor, you -- do you have an opinion that the Ethicon TVT should be significantly changed or modified in its design?
MR. BOWMAN: Object to form.
THE WITNESS: I believe that the TVT is a heavyweight mesh. We know that the foreign body reaction associated with heavyweight mesh can be more severe. And so, you know, it's going -- all these -- the more polypropylene that's there, the more foreign body reaction, oxidation, degradation, is going to be present.
BY MR. THOMAS:
Q. Are you of the opinion that there should be a different material used?
A. I've never expressed an opinion about different materials to be used for mesh.
Q. Okay. Do you have -- strike that.
Are you prepared to offer an opinion at all in this case that the Ethicon device needs to be changed or modified in its design?
MR. BOWMAN: Object to form. Can we just get specific to the device you're talking about?
THE WITNESS: Yeah.

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MR. THOMAS: The Ethicon TVT device.
THE WITNESS: Could you repeat the question?
BY MR. THOMAS:
Q. Dr. Guelcher, do you have the opinion that Ethicon should change or modify the TVT device, and if so, how?
A. Well, I -- I thought I just answered that. It's a -- it's a heavyweight mesh. Ethicon's own documents even point to the fact that a lighter-weight mesh would elicit a less intense inflammatory response, oxidation, degradation, less mesh is better. This is a concept that I've testified about previously. It's in the documents.
Q. Okay. Do you have an opinion as to how that change in design should be made?
A. I don't believe that opinion was expressed in my report other than just to say a lighter-weight mesh would -- less mesh is better. I mean, there's a -- but I didn't really talk about that. I mean, I would say that a lighter-weight mesh would be expected to invoke less inflammation, less foreign body reaction, less oxidation, less degradation.

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Q. Do you have an opinion that any mesh product could be reasonably safe and effective for its intended use in the pelvic floor?
MR. BOWMAN: Object to form.
THE WITNESS: I think I've testified to, and it's in the report, that the pelvic floor is very different from the abdominal wall. These meshes behave differently in the pelvic floor than they do in the abdominal wall, and -- and more testing needs to be done to evaluate their safety in the pelvic floor.
BY MR. THOMAS:
Q. So is it fair to understand that you do not have an opinion that any mesh product could be reasonably safe and effective for its intended use in the pelvic floor? You don't have that opinion today?
A. Not without further testing.
I -- I should clarify my answer. I don't believe it would be safe unless it were tested to make sure that it was safe because of the problems with polypropylene oxidation, degradation.
Q. Is it fair to understand that whatever design modifications are made in order to reduce the risks as you've identified them in your

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report, that design modification will have to be tested before it will be used in humans?
A. What I testified in Perry is I would have liked to have seen more testing done in in vitro oxidative medium in large animals. This could be done in the sheep models. You could do -- compare abdominal wall to the pelvic floor. There could be more preclinical testing that would be done. That's what's in the report.
Q. I'm not really after what you've testified before.
A. Okay.
Q. This is really a different question. You've told me ways in which you think Ethicon should change the design of its product. You've also told me that you think there should be testing done on any change in the design of the product before it would be introduced into use; is that fair?
A. That's fair.
Q. Okay. And the testing that you describe would be both clinical, preclinical, in vitro, a variety of tests to make sure that this change of design would be safer than the existing TVT design, fair?

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A. Yeah.
Q. And you'd also expect this change in design to be subject to review by the FDA; is that fair?
A. I'm not -- I can't speak about what -- I'm not really -- it's not in my report about what FDA should and should not do. I mean, I understand that FDA reviews biomedical device applications. I understand that. But I'm not -- I don't want to speculate about what FDA would do or would not do.
Q. You would expect FDA, though, to look at any change in design?
A. It would have to be submitted as a -- as a -- either a 510(k) or a PMA that would be reviewed by FDA.
Q. Okay. So the FDA could make whatever determinations they needed to make in the change of the design and the safety and efficacy of the product, fair?
A. Say that again. I didn't quite catch what you meant.
MR. THOMAS: I need your help.
(Reporter read back requested material.)
THE WITNESS: Well, FDA would not

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change the design. They would ask the company, say, for more information, but they wouldn't -- I don't think that FDA designs products.
BY MR. THOMAS:
Q. But they would review the design in the context of the safety and efficacy for the patients it was intended to treat, fair?
A. They would review those data, yeah.
Q. Okay.
MR. THOMAS: I need to take a break again. Excuse me.
(Luncheon recess observed.)
BY MR. THOMAS:
Q. Doctor, the testing that's done in Exhibit 12 is -- is good, sound, reliable testing, isn't it?
A. Yes, I believe so.
Q. And the conclusions that you've -- strike that.
The results that are contained in Exhibit 12 you believe to be scientifically valid results?
A. Yes.
Q. And the comments that you made to the International Urogynecological Association about those findings were fair and accurate at the time

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that you gave them, weren't they?
A. I believe so.
Q. Why aren't you relying on this testing for your report?
MR. BOWMAN: Objection to form.
THE WITNESS: We haven't published it yet.
BY MR. THOMAS:
Q. Okay. Is that the sole reason?
A. Probably the main reason.
Q. Do you plan to publish these -- this data?
A. We're discussing it.
Q. Have you prepared a manuscript?
A. It's in draft form, but we're -- we're deciding what to do.
Q. Has it been submitted to any journals?
A. We submitted it to the IUGA, the International -- since we had a podium presentation, we submitted it to the -- the International Urogynecology Journal.
Q. Okay. And are they considering it or did they refuse it?
A. They didn't want to publish it. We didn't have -- yeah, they didn't want to publish it.
Q. Why not?

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A. We didn't have much clinical data.
Q. Have you submitted it to any other journals?
A. No.
Q. Is there a manuscript form that you submitted to the International Urogynecological Association?
A. There's a PDF that we uploaded to the -- the submitted manuscript.
Q. Do you have a file of information that you maintain concerning your submission of this data to the IUGA journal?
A. I have documents related to that, I believe.
Q. Okay. Now, for Exhibit No. 10, which is the paper that you co-authored with Dr. Iakovlev and Dr. Bendavid, I believe you said your responsibility there was limited to the myeloperoxidase; is that fair?
A. I didn't say it was limited to it. I said that -- I believe what I said was that my primary contribution, it was my -- I suggested that we stain for myeloperoxidase, and Dr. Iakovlev stained for myeloperoxidase. We saw positive staining. And based on that contribution, he

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believed that I should be a co-author on the paper. But I -- I did -- yeah, it's...
Q. Did you have any involvement in the peer review process for the paper?
A. Dr. Iakovlev handled all of that as a corresponding author.
Q. Do you have -- maintain a file about the submission of this paper to different journals?
A. I don't know what I've got on that.
Q. Was this paper submitted to multiple journals?
A. I believe -- I believe it was submitted to other journals.
Q. Do you know which ones they were submitted to?
A. No, I don't remember right now.
Q. Were there comments made on the journal submission?
MR. BOWMAN: Object to form.
THE WITNESS: Well, we -- I mean, I'm -- there were -- I don't remember what -- exactly what happened with those other reviews. That was a while ago.
BY MR. THOMAS:
Q. Do you maintain a file of the comments

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that you received on the -- what you submitted to the journals?
A. I don't know. I don't...
Q. Did -- did you share your draft of Exhibit 9 with plaintiff's counsel before it was published in the International Urogynecological Journal?
A. Well, I submitted it. I wrote a -- I wrote the abstract and I submitted -- I don't remember sending it to plaintiff's counsel before I submitted it. I can't remember, but I don't think I did.
Q. Did you discuss your plans to submit this abstract to the International Urogynecological Association with plaintiff's counsel before you did so?
A. I don't remember. I decided to do it maybe -- when the workshop came up, I think, is when I decided to submit the abstract. It's not a meeting that I'd normally go to, so I just -- I don't remember the timing of everything.
Q. Okay. But at the same time that you were having the meeting with plaintiff's counsel to plan for the workshop is the same time that you planned to submit this abstract; is that fair?

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A. No, I don't believe so because the workshop was -- the workshop was probably -- it was a proposal to include in a meeting. By the time I submitted that abstract, the sessions had already been determined.
Q. Okay. So you had already signed --
A. The workshop was first, I think.
Q. Okay.
A. That's typical.
Q. All right. Exhibit No. 10, the article that you co-authored with Dr. Iakovlev and Dr. Bendavid?
A. Yes.
Q. Did -- do you know whether this article was reviewed by plaintiff's counsel before it was submitted?
A. I don't know who -- like I said, Dr. Iakovlev is the corresponding author. I don't -- I -- I don't know what he did there.
Q. On page -- on -- go back to Exhibit No. 9 real quick. On page 2 under "Disclosure Block," did you decide what to include under the disclosure block?
A. I'm looking for it.
No. Well, okay. I need to explain that.

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I -- I'm going by my memory, but these are -- all the meetings have different requirements. I think that this one may have had specific blocks that I could choose from. That's probably why -- I -- that says "consulted" and "consulting fee." Those -- those look like fields that I had to select, is what I -- but I don't remember what I did exactly.
Q. What did you intend to convey when you said you were a consultant?
A. Well, I think consultant is probably what I had to select to choose expert witness.
Q. Was there --
A. I --
Q. I'm sorry.
A. I'm sorry. I don't think that I chose -- I can't remember, but I -- this -- that doesn't look like words that I would use to describe my activities, which probably tells me that there was a field that I had to fill out, and that was the closest. That's -- that's my best guess, but I don't -- I don't really remember.
Q. Was there an opportunity to disclose that you were a testifying expert for the plaintiffs in the mesh litigation?

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A. I don't remember. That's -- I -- I don't know that it was that detailed.
Q. At the time of this publication and for years prior to that time, Dr. Dunn had also been a consultant who would testify as an expert, hasn't he?
A. That's right.
Q. Do you know why he didn't disclose anything?
A. That's an error. And I don't -- when I presented this talk, I had a disclosure slide. I don't know why it says nothing to disclose. It may have been that he had to fill that out and didn't realize it. I don't -- I don't know. That's an error. But I did clarify that point --
Q. Is the --
A. -- in the talk.
Q. I'm sorry.
A. Yeah.
Q. Is the disclosure slide one of the ones that you produced to me?
A. Well, it's -- it's in the -- it's -- you have slides for the AIChE presentation and for the IUGA presentation, and I believe there's a disclosure slide that says we were testifying

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in -- in -- in the litigation.
Q. Okay. Whatever slides you used in your presentation have been produced to me today?
A. Yeah, I believe so. I -- I produced those.
Q. Doctor, I've tried mightily not to reinvent the wheel and go through the opinions that you've given in previous depositions. Have we covered all of the opinions that you're prepared to give in this case?
A. Let me look at them one more time to be sure. I want to be accurate.
I believe so.
Q. Okay. The only question I have is on page 17 of your report.
A. Okay.
Q. You talk about the failure modes and effects analysis.
A. Yes.
Q. That's the first time I've seen that in any of your reports. Is that new? Dr. Dunn testified about it in the Huskey case.
A. He was -- he was deposed on -- I don't believe he --
Q. He gave a deposition --

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A. Yes.
Q. -- in that case. That's what I meant. I'm sorry.
A. Oh, that's what you -- okay. I understand. Yeah. I think that may have been the first -- I can't remember if that's the first time I wrote that or not, if it's in another report.
Q. You cite no documents in connection with that opinion. Are you prepared to offer that opinion at trial?
MR. BOWMAN: Object to form.
THE WITNESS: I -- I don't intend to speak about failure modes and effects analysis at trial.
BY MR. THOMAS:
Q. Okay. So is it fair for me to be able to eliminate from your opinion the paragraph beginning "finally" to the end?
A. Not -- just that sentence that addresses FMEA --
Q. Okay.
A. -- is -- is not something that I would testify about at trial.
I would not testify about FMEA.
Q. Very good.

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And I think everything else is stuff that's been covered in prior depositions. Is that to the best of your knowledge?
A. To the best of my knowledge, yes.
MR. THOMAS: I'm going to stop. I'm going to hold the deposition open pending some issues, but we may or may not -- I may or may not seek to return. But those are all the questions I have right now.
MR. BOWMAN: Can -- do you mind -- what the issues are? Can you tell me what they are?
MR. THOMAS: Questions about those documents, the test results that he's not able to talk about without review. And I -- I probably won't come back, but I -- I just don't know until I think about it. And you may have a rebuttal report anyway that may solve all that problem depending on what you see today.
MR. BOWMAN: You know, I have very little, I think, in -- in terms of redirect. I think I'll just go now, if that's all right.
MR. THOMAS: That's fine.
MR. BOWMAN: Okay.

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E X A M I N A T I O N
BY MR. BOWMAN:
Q. So, Dr. Guelcher, you've looked at Exhibit 12, the folder for PCT-168?
A. Yes.
Q. And you've already testified that you hadn't reviewed this prior to today?
A. That's right.
Q. You also testified that you're not relying on anything in this document for the opinions that you're expressing at trial; is that right?
A. Yes, that's correct.
Q. Can I ask you, do you know what Ethicon product was examined for this report?
A. I believe it was a TVT laser-cut mesh.
Q. And is it your understanding that your reports being offered in this case are -- are -- do they -- do they at all apply to the laser-cut mesh?
A. No. My understanding, it's machine cut.
Q. Have you at any time ever held in your hand, examined, or looked at a -- to your knowledge, a -- a mechanical-cut TVT?
A. Not to my knowledge.
Q. Do you know, is -- besides the fact that

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Dr. Dunn took the FTIR and that Dr. Rogers compiled the data for the XPS test, and besides what you've already testified about the protocol for the solution used for this testing, is there anything else that you can tell us in regards to Exhibit 12?
A. Not at this time, no.
Q. Doctor, in your report, did you ever, and have you -- and are you offering any opinion as to a specific material or design of the product that could be used instead of what you understand to be the design of the mechanical-cut TVT?
A. No, I'm not referring to a specific design.
MR. BOWMAN: I think that's all I have.
MR. THOMAS: Thank you. That's all I have.
We have a couple of things we need to do. We're going to take Exhibit 8, which is the thumb drive. We need to figure out a way to get a copy of this so that Dr. Guelcher doesn't lose his notebook.
Last time we did that and got it back to you promptly. Are you comfortable with that?

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THE WITNESS: That's fine, as long as I can get it back.
MR. HUTCHINSON: Before we go off the record, can we talk for just one second?
MR. THOMAS: Hang on just a minute.
(Brief recess observed.)
MR. THOMAS: That's all. Thank you, Doctor.
THE WITNESS: Okay.
MR. THOMAS: Good to see you again.
THE WITNESS: Thank you.
MR. BOWMAN: Thank you.
Do you wish to read and sign the transcript?
THE WITNESS: I'll read. I'll look at it. Yes.
MR. BOWMAN: Is that a 30-day window?
MR. THOMAS: I believe so.
THE WITNESS: Okay.
MR. THOMAS: And I believe I have your address.
MR. BOWMAN: And I think I just want to formally object to extending the deposition or holding it out, just -- just to get it out there.
MR. THOMAS: That's fine. Thank you

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all for your cooperation.
MR. BOWMAN: All right. Thank you.
(Proceedings adjourned at 12:32 P.M.)
FURTHER DEPONENT SAITH NOT.

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REPORTER'S CERTIFICATE

I certify that the witness in the foregoing deposition, SCOTT GUELCHER, PH.D., was by me duly sworn to testify in the within entitled cause; that the said deposition was taken at the time and place therein named; that the testimony of said witness was reported by me, a Shorthand Reporter and Notary Public of the State of Tennessee authorized to administer oaths and affirmations, and said testimony, pages 1 through 121 was thereafter transcribed to typewriting.

I further certify that I am not of counsel or attorney for either or any of the parties to said deposition, nor in any way interested in the outcome of the cause named in said deposition.

IN WITNESS WHEREOF, I have hereunto set my hand the 21st day of September 2015.

____
GARY SCHNEIDER, RMR, CRR, TLCR No. 676
My commission expires: 1/9/2018

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E R R A T A

I, SCOTT GUELCHER, PH.D., having read the foregoing deposition, Pages 1 through 121, taken September 15, 2015, do hereby certify said testimony is a true and accurate transcript, with the following changes, if any:

PAGE	LINE	SHOULD HAVE BEEN	REASON
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SCOTT GUELCHER, PH.D.

____
Notary Public
My commission expires: _____________

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